Scalers for 2000 Minimum Bias Data

Run Selection, Tab1 To get the numbers together is a little awkward, since they are collected from different places by hand. I started at the last runs from September and got tired after a while... The table presents the last 8 (+one random selected) run of 99 total runs in the minimum bias P00hm production. This is about 35% of the available statistics.

- run number: as it comes in the production
- Date, time: run log data base (thanks Jeff)
- Slow control zdc counts: from the sc-data base (thanks Dennis, Jeff)
- Time: The sc-database is loaded every 5 minutes. (But accurate to the mili second) Thus the uncertainty on the zdc counts is $5min/\sqrt{(12)}/time$
- Raw Rate: Calculated

The total data taking time for this 35% of the statistics is only 8.1h. That means that we collected all the 2000 minimum bias data in about 23 hrs.

run	date	time	Slow Cont. nZDC(k)	time(min)	rate (Hz)
1239012	8/26/00	1:34-2:45 am	116.2	70	27
1245015	9/1/00	8:01-8:20 am	51.6	20	43
1246017	9/2/00	3:28-4:29 am	248.2	60	69
1247015	9/3/00	3:27-4:19am	279.7	52	89
1247017	9/3/00	4:43-5:04am	81.5	21	64
1247018	9/3/00	5:06-5:28 am	77.4	20	71
1248015	9/4/00	4:29-6:57 am	469.3	148	52
1248017	9/4/00	7:13-8:38 am	192.0	85	38
1248018	9/4/00	8:39-8:53 am	29.0	15	32
Sum				8.1h	

Table 1: Runs/times/ number of zdc coincidences from scaler/ times/ raw rates

Dead/Live Time, Tab 2 I take the reconstructed events (P00hm) and count the numbers of minimum bias triggers (no vertex required) per run $= events_{P00hm}$. (I should cut on the correct trigger word here). Than calculate the live time $live = events/rawnZDC$. The average dead time is 16.5%, which does not mean much since the dead time is rate dependent. The DAQ output rate is than $DAQ_{out} = rawRate * live$. As it turns out the DAQ output rate was rather constant, the average is 7.9 ± 1.3.

My conclusion was, that the effective data taking time is rather short, which is probably still true for 2001. So, switch it on, leave it running and avoid off-times as much as possible.

run	raw nZDC(k)	raw rate (Hz)	events P00hm (k)	live (%)	DAQ out Rate (Hz)
1239012	116.2	27	29.4	25.3	6.8
1245015	51.6	43	8.7	16.0	7.2
1246017	248.2	69	29.9	12.0	8.3
1247015	279.7	89	26.4	9.4	8.4
1247017	81.5	64	7.4	9.0	5.8
1247018	77.4	71	11.3	14.6	10.3
1248015	469.3	52	77.3	16.5	8.5
1248017	192.0	38	43.8	22.8	8.6
1248018	29.0	32	6.7	23.0	7.5
Average				16.5 ± 6	7.9 ± 1.3

Table 2: Dead/Live time